

MEDICAL DEPARTMENT GUIDELINE BROOKHAVEN NATIONAL LABORATORY SUBJECT: Clinical Laboratory Operations of the CRC & Satellite Facilities	NUMBER: IC-08/3	PAGE 1 OF 4
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1.0 **PURPOSE:**

This document defines infection control requirements for program specific clinical laboratory operations. Clinical operations consist of any clinical diagnostic tests. These activities occur both in the Central CRC and the CRC Satellite facilities (see CRC Policy 1.2).

2.0 **POLICIES:**

STANDARD PRECAUTIONS

Standard Precautions shall be used by all laboratory employees at all times when handling any and all laboratory specimens. There are to be absolutely no exceptions to the use of universal precautions. Handwashing is the single most effective deterrent to the spread of infection. (Dept. Guideline, IC-6.1/1, "Bloodborne Pathogens Exposure Control Plan").

Hands must be washed whether gloves are worn or not worn.

- 2.1 After contact with all subjects
- 2.2 After handling any specimen
- 2.3 After contact with each specimen batch. For example at:
 - a. Accession labeling, centrifugation
 - b. Stopper removal
 - c. Separator insertion
 - d. Specimen transfers
- 2.4 After skin contact with any biological sample of any reagent
- 2.5 After completing work
- 2.6 Prior to and after eating, drinking, smoking
- 2.7 Prior to and after use of restroom

3.0 **ATTIRE**

Laboratory coats, uniforms or fluid resistant gowns must be worn by all Laboratory staff during specimen procurement, handling and testing. Fluid resistant gowns may not be worn out of the lab.

Laboratory coats, uniforms or fluid resistant gowns upon which biological material has been spilled are a biohazard and must be expediently removed and sent to be laundered or disposed of as regulated medical waste.

4.0 **LABORATORY CLEANLINESS**

- 4.1. At the end of the day, laboratory staff members are responsible for leaving their bench and area neat and clean.
- 4.2. Once a day, the work area shall be wiped down with 1:10 diluted household bleach solution. In addition, all racks, pipettes, blood tube holders, centrifuges, ice containers etc. shall also be disinfected. Dirty underpads on counters shall be replaced.
- 4.3. The specimen collection area will be kept clean and orderly and free of waste materials. All waste materials will be placed in the receptacles provided. IV bags shall not be left in the sink where hands are washed. These are considered contaminated.

5.0 **PROCEDURES:**

5.1. Collection of blood and body fluids (**SAFETY DEVICE NEEDLES SHALL BE USED IN MOST INSTANCES including winged (butterfly) safety needles, blunt collection needles, disposable blood collection multi-sample luer adapters, collection needles with recapping sheath, and hinged recapping sheath needles.**)

- 1) Specimen collection personnel shall use appropriate barrier techniques during subject contact.
- 2) Use aseptic technique and disposable equipment between subjects, during site preparation and before procedure.
 - a) Avoid multiple venipunctures at same site.
 - b) Use sterile collecting tubes, plastic if available.
- 3) Avoid multiple sticks in same site when obtaining capillary specimens, and use sterile equipment.

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- 4) For routine blood draws: Cleanse skin with alcohol, and do not palpate site after skin preparation.
For blood cultures: Cleanse culture bottle stoppers with alcohol, cleanse skin with alcohol and iodophor, allow iodophor to dry before performing venipuncture, and do not palpate site after skin preparation.5) For IV and IA procedures, follow Dept. Guideline IC-2.2/2, "Intravenous Admixtures" and Dept. Guideline IC-3.0/1 "Sterile Supplies Procedures".

5.2 Transporting and receiving specimens in the laboratory

- 1) Label specimens properly.
- 2) Make sure specimens are properly closed and double-bagged.
- 3) Use containers with secure closures, to avoid spillage and hand contamination with body fluids.
- 4) Flag specimens at collection site to indicate infected subject as source.
- 5) Instruct courier or messenger service personnel how to transport specimens properly so as to prevent spills, leaks or contamination.
- 6) Refrigerators/freezers that store specimens shall be properly labeled and monitored for accurate temperature with a NIST thermometer and daily temperature log sheets.
- 7) Specimens transported between satellite facilities shall be done using a BNL vehicle or your own vehicle using the proper secondary container. Permission needs to be obtained from our BNL Dept. of Transportation Safety Officer.

5.3. In order to prevent

- Accidental ingestion of material containing agents, eg., *Salmonella*, *Shigella*, hepatitis A or enterovirus.
- Inoculation or contact with fluids containing hepatitis B or C.
- Respiratory spread (inhalation) from aerosolization of agents, e.g., *Mycobacterium tuberculosis*:

1) Use caution with pipetting procedures.

- a) Do *not* perform mouth pipetting of infectious or toxic biological fluids, sera, or any biohazardous material.
- b) Do *not* prepare bacterial suspensions by bubbling air through liquid by means of a pipette.
- c) Do *not* blow infectious material out of pipettes.
- d) When using automatic pipettors, do not forcefully eject the solution from the pipette (to prevent aerosolization).
- e) Dispose of pipettes properly after use.

Follow Tuberculosis Exposure Control Plan IC-16.0/1.

2) Clean up any spills of body fluids immediately.

- a) Keep wash bottle of disinfectant at each workstation.
- b) Wear gloves for contaminated spills.

3) Clean up material that might involve possible aerosol generation of microorganisms

- a) Evacuate rooms for 10 air changes.
- b) Wear gloves, masks, and other necessary protective clothing while cleaning up spills.

4) Use care with operation of centrifuges and shakers.

- a) Instruct operators with the proper use of the different types of centrifuges and shakers and that they wear full face shields when operating the centrifuge.
- b) Check and clean or replace the rubber cushions in the centrifuge cups as necessary.
- c) Check all tubes for cracks prior to use.
- d) Balance tubes prior to centrifuging.
- e) Use a brake to stop rotating head; *never* stop the rotating head with your hand.
- f) Keep lid to the centrifuge closed while machine is being used.
- g) Do not open centrifuge until completely stopped when centrifuging blood specimens.
- h) Use stoppered tubes when centrifuging blood specimens.
- i) Each employee who uses the centrifuge is responsible for the condition of it at the end of the procedure.
- j) Microhematocrit and blood bank serological centrifuges must be cleaned daily, or after each run, with approved disinfectant solution. In case of breakage, cleaning and disinfections must be immediate.
- k) Specimens spun in angle head centrifuges must never be filled to the extent that liquid will be in contact with the tube lips.

3.5 Obtain first aid for puncture wounds and follow procedure for hepatitis B prophylaxis as required by the Bloodborne Pathogens Exposure Control Plan (Dept. Guideline IC-6.1).

5.4 Disposal of contaminated wastes - follow Dept. Guideline IC-6.2, "Handling & Disposal of Regulated Medical Waste".

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6.0 PRODUCTS OF THE CLINICAL LABORATORY WHICH MAY INFLUENCE THE INFECTION RISK TO SUBJECTS AND/OR PERSONNEL.

6.1 Agents which may be transmitted by blood include:

- a) Hepatitis viruses B & C, HIV.
- b) *Toxoplasma gondii*.
- c) *Plasmodium* (malaria organism).
- d) Cytomegalovirus.
- e) Epstein-Barr virus.
- f) *Rickettsia rickettsii*.
- g) Bacteria, usually gram-negative.

6.2 If the blood donors have not been screened for the following:

- a) Fever or acute illness.
- b) Dental surgery in past 72 hours.
- c) History of hepatitis, jaundice or close personal contact with a person with viral hepatitis or jaundice.
- d) Narcotic drug addiction/alcoholism (normal controls).
- e) Infections at venipuncture site.
- f) Vaccination within past 2 weeks with a live-virus vaccine.
- g) Evidence of malaria-travel to, or resident of, endemic area (also if on antimalarial drugs).
- h) Positive serology for syphilis.
- i) Recent evidence of infection with CMV or EB virus.
- j) HBsAg

Then it is the Principal Investigator's responsibility in his/her protocol to identify the criteria for rejecting a blood donor's blood.

6.3 Control Sera and Reagents from Biological Sources:

All material prepared from biological sources are biohazardous in that they are high probability agents for transmission of disease. All such materials must be treated as though they were specimens from high risk patients.

7.0 SPECIFIC WORK PRACTICES IN THE LABORATORY TO DECREASE RISK OF MICROBIAL TRANSMISSION.

7.1. Designate use of special clothing.

- a. Remove laboratory coats or protective clothing worn in the Laboratory before leaving the area, especially, when going to the cafeteria or out of the building.
- b. Use protective apparel as appropriate. See Guideline IC-6.1, "Bloodborne Pathogens Exposure Control Plan".

7.2. Evaluate exposure to communicable disease agents.

- a. Keep screening tests current as required by the Employee Health Service.
- b. Keep immunizations current.

NOTE: All Clinical Lab. employees must be included in the OMC Health Care Personnel Protocol

- c. Require personnel to wear gloves when handling contaminated blood or specimens.
- d. Do not permit eating, drinking, and smoking in the Laboratory procedure areas.
- e. Do not store food in the laboratory refrigerators used for specimens or reagents.
- f. Do not handle telephone, door knobs or laboratory notebooks with contaminated gloves.
- g. Fingers, pencils, pens, and other objects that may be contaminated must be kept away from the mouth.
- h. Do not apply cosmetics while in the designated work area.
- i. If a laboratory slip becomes contaminated with any biological material, another slip must be prepared and the contaminated slip destroyed.

Procedures j-n shall be done behind a plastic screen to prevent aerosolization.

- j. If the rubber stopper from the vacutainer needs to be removed, laboratory personnel should twist the stopper gently, covering it first with gauze to minimize aerosols.
- k. When ejecting a fluid specimen from a syringe, always remove the needle first so as to minimize aerosols. Insert the syringe deep into a large container, allowing the fluid to run down on the inside of the container.
- l. All biological specimens should be covered, capped, corked or plugged, except while being collected or in the process of separation pouring or analysis.

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- m. If the outside of a tube becomes contaminated with biological material, it should be wiped off with disinfectant before others handle it.
- n. Biological specimens should be transferred through the use of a bulb suction pipette instead of pouring the specimen. If the specimens must be poured, any drips that may occur must be wiped up with disinfectant.
- o. Subject's sterile and clean supplies shall be kept in a clean, closed cabinet; Other supplies shall be kept in separate cabinets.
- p. Laboratory room shall not be used as a storage area.
- q. Only cleaning supplies shall be stored under sinks.
- r. Unnecessary items shall not be brought into the laboratory as they might become unknowingly contaminated. Such items include newspapers, magazines, books, handbags and knapsacks.

8.0 HOUSEKEEPING AND CUSTODIAL SERVICES

For Custodial Services follow Dept. Guideline, IC-11/0, "Custodial Services"
For Housekeeping Services follow Dept. Guideline, IC-12/1, "Housekeeping"

CRC Satellite Facilities Where Clinical Lab Operations Occur

1. PET
2. MRI